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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/749,375	12/21/2000	Thomas Boehme	DE9-1999-0085 (590.027)	5538

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FERENCE & ASSOCIATES  
400 BROAD STREET  
PITTSBURGH, PA 15143

EXAMINER
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HARPER, V PAUL

ART UNIT	PAPER NUMBER
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2654

DATE MAILED: 01/26/2004

9

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/749,375

**Applicant(s)**

BOEHME, THOMAS

**Examiner**

V. Paul Harper

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)          | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities:
  - the log equation on page 8, line 3 is in improper form. The Examiner does not understand the 'é' and 'ù' characters that bracket the equation, and believes that the equation could be written more clearly as  $-\log_2 26 = 4.7$ , or 5 bit--.

Appropriate correction is required.

2. The remaining corrections are acceptable.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Gadd ("PHONIX: The Algorithm" *Program*, October 1990).

Regarding claim 1, Gadd teaches an algorithm for phonetic retrieval of names (p. 363, §1). Gadd also teaches **"a method for coding and storing phonetic information representable as an original character sequence, comprising the step**

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**of coding the phonetic information in a bit code,”** which corresponds to performing phonetic substitutions on names and representing them with codes (pp. 365-366, §5).

Regarding claim 2, Gadd teaches everything claimed, as applied above (see claim 1). In addition, Gadd teaches **“the step of deriving said phonetic information from names”** (§5, p. 365, 1<sup>st</sup> sentence).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gadd in view of Pfeifer et al. (“Retrieval Effectiveness of Proper Name Search Methods,” Information Processing and Management, 1996), hereinafter referred to as Pfeifer and further in view of well know prior art (MPEP 2144.03).

Regarding claim 3, Gadd teaches everything claimed, as applied above (see claim 1), but Gadd does not specifically teach **“the bit code related to said phonetic information has a length of 32 bits.”** However, the examiner contends that this concept was well known in the art, as taught by Pfeifer.

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In the same field of endeavor, Pfeifer evaluates proper name search methods including an evaluation of the Phonix4 algorithm with a code length of four characters (§5,3 "Analysis").

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Gadd by specifically providing a four character Phonix code, as taught by Pfeifer, since this is a standard variant of the Phonix algorithm.

Furthermore, Gadd in view of Pfeifer do not specifically teach a code length of 32 bits. However, the examiner takes official notice of the fact that the standard representation of an ASCII character as 8 bits was well known in the art.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Gadd in view of Pfeifer such that an 8 bit ASCII code was use, since this is a standard length.

Thus the code length taught by Gadd in view of Pfeifer and well known prior art is 32 bits (4 ASCII characters X 8 bits/char).

Regarding claim 4, Gadd in view of Pfeifer and well-known prior art teach everything claimed, as applied above (see claim 3). In addition, Gadd teaches **"the step of replacing with at least one group of characters, consisting of said original character sequence, with a respective number of normalized character groups having the same or a similar sound when spoken but a different spelling"** (§5, "The PHONIX algorithm", in particular step a)).

Regarding claim 5, Gadd in view of Pfeifer and well-known prior art teach everything claimed, as applied above (see claim 4). In addition, Gadd teaches **“covering the beginning portion of said original character sequence with a first normalized character group; covering the middle portion of said original character sequence with one or more of said normalized character groups; and covering the end portion of said original character sequence with one of said normalized character groups”** (p. 367, table of phonetic substitutions for the start, middle and end of a word).

Regarding claim 6, Gadd in view of Pfeifer and well-known prior art teach everything claimed, as applied above (see claim 5). In addition, Gadd teaches **“the step of extracting said normalized character groups from particular tables providing a mapping between said original character sequence groups and said normalized character groups by a respective provision of a cross-reference in said table”** (p. 365, step a) “perform substitutions” with the tables given on pp. 367-369).

Regarding claim 7, Gadd in view of Pfeifer and well-known prior art teach everything claimed, as applied above (see claim 6). In addition, Gadd teaches **“... said tables comprising groups of said original character sequences”**, which corresponds to the tables given on pp. 367-369, but Gadd in view of Pfeifer and well-known prior art do not specifically teach **“the step of empirically rounding said tables ...”** However, the examiner contends that this concept was well known in the art, as taught by Pfeifer.

Pfeifer further teaches that algorithms have been *developed* for other languages and that this includes adapting character classes or substitution rules where this development would necessarily require an empirical technique (§2, ¶'s 1-3).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Gadd in view of Pfeifer and well-known prior art by empirically developing the character substitution rules, as taught by Pfeifer, since this is the common (and most likely only way) to develop these tables.

Regarding claim 8, Gadd in view of Pfeifer and well-known prior art teach everything claimed, as applied above (see claim 7). But Gadd in view of Pfeifer and well-known prior art do not specifically teach “. . . **reflect the [language] specific phonetics.**” However, the examiner contends that this concept was well known in the art, as taught by Pfeifer.

Pfeifer further teaches that the substitution rules can be developed to represent the phonetics of different languages (§2, ¶'s 1-3).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Gadd in view of Pfeifer and well-known prior art by specifically providing the language support, as taught by Pfeifer, since this capability will improve performance in a given language.

However, Gadd in view of Pfeifer and well-known prior art do not specifically teach “**the step of spelling actual language in use reflect the specific phonetics.**” However, the examiner takes official notice of the fact that a means of selectively

alternating between known elements (including spelling the name of the alternative) was well known in the art.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Gadd in view of Pfeifer and well-known prior art such that the language in use could be selected, since appropriate language-specific codes and substitution rules improve results.

Regarding claim 9, Gadd in view of Pfeifer and well-known prior art teach everything claimed, as applied above (see claim 5). But Gadd in view of Pfeifer and well-known prior art do not specifically teach **“the step of decreasing a coding precision with a distance from the beginning of said original character sequence.”** However, the examiner takes official notice of the fact that the use of bit-wise code of a size appropriate to the character or number being represented was well known in the art. In this case, Gadd teaches a code that consists of a character followed by a sequence of numbers ranging from 1-8 where the character can be most efficiently represented with 5 bits (for 26 letters in alphabet, i.e.,  $2^5$  equals 32, 5 being the smallest number of bits that can represent 26 letters) and the number with 3 bits (for the 8 numbers 0-7) resulting in a coding with decreasing precision for the original character (i.e., 5 bits to 3 bits).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Gadd in view of Pfeifer and well-known prior art using the above mentioned coding scheme, since this would result in the most efficient use of memory.



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Regarding claim 10, Gadd in view of Pfeifer and well-known prior art teach everything claimed, as applied above (see claim 9). In addition, as argued above in the rejection of claim 9, Gadd in view of Pfeifer and well-known prior art teach **"the step of coding a first character with five (5) bits,"** since this is the most efficient representation of a letter from an alphabet of 26 letters.

Regarding claim 11, the limitations in this claim are similar to the limitations in claims 1, 2, 4, 5, 6, 7, 8, 9, and 10, and are rejected for the same reasons.

Regarding claim 12, the limitation in this claim is similar to the limitation in claim 3 and is rejected for the same reasons.

Regarding claim 13, the limitations in this claim are similar to the limitations in claims 1, 2, 4, 5, 6, 7, 8, 9, and 10, and are rejected for the same reasons.

### ***Response to Arguments***

5. Applicant's arguments filed 11/28/03 have been fully considered but they are not persuasive.

6. Applicant asserts on page 9:

Each of the independent claims refers to a "bit code", e.g., "coding the phonetic information in a bit code." (Claim 1) As discussed in the specification, in the present invention "the phonetic information is coded in a bit code which does not comprise any characters." (Page 5, lines 11-12) As further discussed in the specification, [b]y representing the phonetic information as a sequence of bits, i.e., a binary value, the performance of a database search is significantly increased ..." (Page 9, lines 5-7) ....

The complete quote from the Applicant's specification on page 5, lines 10-12 is "...a method and system for storing phonetic information *representable as an original character sequence in which the phonetic information* is coded in a bit code which does not comprise any characters" (italics added). The Examiner interprets this to mean a sequence of characters coded in bits, since the phrase "which does not comprise any characters" seems to contradict the previous "representable as an original character sequence" (first because bits are characters—0s and 1s-- and required for the internal computer representation, and second, because a coded sequence of phonetic characters is still comprised of characters—just in coded form). Furthermore, any computer representation of a character would entail the use of a "bit code."

7. Applicant further asserts:

... The Office admits, however, that "Gadd teaches a code that consists of a *character* followed by a sequence of numbers ... " (Office Action at 7) Thus, Gadd does not disclose the bit code of the present invention and as such does not anticipate the present invention. (italics added)

Inherent in Gadd's statement, is the fact that a character would have a "bit code" representation when the describe algorithm is run on a computer.

8. Applicant asserts on page 9:

The Office points to Section 5.3 of Pfeifer and the evaluation of the Phonix algorithm to support its position. (Office Action at 3) As stated in the description of the Phonix algorithm (Section 2.2), however, the Phonix code of a word is created "by replacing **every but the first** remaining

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letter by its numerical number (emphasis added) Thus, even if there were a motivation for the combination of Gadd and Pfeifer, this combination does not teach or suggest the claimed invention.

The Phonix4 algorithm described by Pfeifer (§5.3) is a variant of the Phonix algorithm described by Gadd and, as such, already "combined." The motivations given in the claim 3 rejection have to do with standard variations in the Phonix algorithm and coding, where the use of standard implementations is the motivation (i.e., inherent in the use of a standard is ease of learning, implementation, support, etc.). In this case, using the standard ASCII 8 bit representation to code Pfeifer's 4 character algorithm (Phonix4) results in a "bit code related to said phonetic information [that] has a length of 32 bits."

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to:

Crystal Park II  
2121 Crystal Drive  
Arlington, VA.  
Sixth Floor (Receptionist)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. V. Paul Harper whose telephone number is (703)

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305-4197. The examiner can normally be reached on Monday through Friday from 8:00 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil, can be reached on (703) 305-9645. The fax phone number for the Technology Center 2600 is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service office whose telephone number is (703) 306-0377.



VPH/vph  
January 14, 2004



**RICHEMOND DORVIL**  
**SUPERVISORY PATENT EXAMINER**